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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,201	10/31/2003	Mark F. Ellis	58836US003	9990
32692 7590 09/17/2007 3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			EXAMINER SELLMAN, CACHET I	
			ART UNIT	PAPER NUMBER
			1762	
			NOTIFICATION DATE	DELIVERY MODE
			09/17/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	Application No. 10/698,201	Applicant(s) ELLIS ET AL.	
	Examiner Cachet I. Sellman	Art Unit 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12-15 and 20 is/are pending in the application.
- 4a) Of the above claim(s) 16-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-15 and 20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-10, 12-15 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over <sup>CS</sup>W~~E~~llis (US 5637646) in view of Moon et al. (US 6174931).

Ellis discloses a method for preparing pressure sensitive adhesives which comprises the steps of: (i) providing a an essentially solvent-free mixture comprising one or more free radically polymerizable monomer having one ethylenically unsaturated group and at least one free radical polymerization initiator where the mixture comprises less than 20 weight percent of solvent (see col. 7, line 55 – col. 10, line 47; col. 11, line 54 – col. 12, line 7; and col. 12, lines 28-44); partially polymerizing the mixture where the partially polymerized mixture has a conversion of about 39% as shown in Example 1 (see col. 23, lines 29-31). Ellis teaches that the viscosity should be less than 200,000 centipoises.

Ellis is silent as to the viscosity of the partially polymerized mixture. However, it is well known in the art that the partial polymerization step is used to increase the viscosity of the mixture so it can be handled more conveniently during the coating process as taught by Moon et al. (col. 4, lines 45-56). Moon et al. further states that an acceptable

viscosity is 2500-4000 centipoises. Therefore it would have been obvious to one having ordinary skill in the art to use a viscosity within the claimed range in the process of Ellis through routine experimentation in order for the mixture to properly coat a substrate especially since Moon et al. teaches a portion of the claimed range.

Ellis further teaches applying the mixture to a substrate and further polymerizing the precursor in a non inert atmosphere. However, Ellis does not teach adding one or more free-radical radiation polymerization initiators as required by step (iii) in claim 1. However it was well known in the art that increase in the speed of polymerization and acceptable pressure sensitive adhesives can be formed by completing the polymerization using photopolymerization by adding a photoinitiator to the partially polymerized mixture and then completely polymerize the mixture as taught by Moon et al. Moon et al. teaches a multi-stage irradiation process where a mixture can be first thermally polymerized (partially polymerized to increase viscosity) then it is photopolymerized by adding a photoinitiator and is exposed to electromagnetic radiation after being applied to a substrate. Therefore it would have been obvious to one having ordinary skill in the art to modify the process of Ellis to further polymerize the mixture by adding a photoinitiator and then exposing it to electromagnetic radiation in order to speed up the polymerization process and form an adhesive having acceptable properties.

The partial polymerization is performed under essentially adiabatic polymerization conditions (abstract) as required by **claim 2**. Again as stated above Ellis teaches the viscosity of the adhesive once applied to the substrate should be less than

200,000 cps which overlaps the claimed range. Overlapping ranges are *prima facie* evidence of obviousness. It would have been obvious to one having ordinary skill in the art to have selected the portion of Ellis' monomer conversion amount range that corresponds to the claimed range. *In re Malagari*, 184 USPQ 549 (CCPA 1974). Further, it is the Examiner's position that for this reason, and because Ellis uses similar materials and process steps, Ellis' Brookfield viscosity would similarly fall within the claimed range of **claim 3**. The free radical polymerization initiators are thermally activatable as required by **claim 4**.

As to **claim 5**, Ellis teaches the claimed free-radical polymerization initiators in col. 12, lines 28-44. As to **claim 6**, Ellis teaches that the amount of free-radical polymerization initiator is within the range of 0.0005-0.5 wt % (col. 13, lines 11-13).

Moon et al. teaches that the photoinitiator can be a type I or type III (col. 5, lines 24-38) and is present at about 0.01-5 parts by weight as required by **claims 7-8**.

As to **claims 9-10**, Ellis teaches a prosperity value of 2.12-2.84 (see examples and Table 8).

As to **claim 13**, Ellis teaches that the final unreacted monomer is about 3% therefore about 97% is converted (see Examples).

The coating can be applied to substrates such as films, cloths, papers, nonwovens, etc (col. 4, lines 58-64) as required by **claims 14 –15**.

### ***Conclusion***

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Weiss et al. (US 6232365) teaches a process for polymerizing a free radical initiated adhesive syrup by irradiating with electrons (abstract). Weiss et al. further teaches that the conversion is dependent on the irradiation and temperature (see col. 21, lines 20-31). Goeb et al. (US 6340719) teaches a process for polymerizing a mixture using a combination of thermal and photopolymerization. Graichen (EP 1375617) teaches a process for forming a radiation curable, solvent-free and printable precursor of a pressure sensitive adhesive but teaches coating prior to partially polymerizing. Wright (US 6866899) teaches a two step polymerization but teaches an inert atmosphere. Chung (US 4478876) teaches curing a coating in a non-inert atmosphere using UV radiation.

### ***Response to Arguments***

4. Applicant's arguments, see pages 6-12, filed 8/17/2007, with respect to the rejection(s) of claim(s) 1-10, 12-15 and 20 under 35 USC 102 (b) and (e) and 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of a different interpretation of the previously applied art and newly found art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cachet I. Sellman whose telephone number is 571-272-

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0691. The examiner can normally be reached on Monday through Friday, 7:00 - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Cachet I Sellman  
Examiner  
Art Unit 1762

cis

**William Phillip Fletcher III/**  
Primary Examiner